FANUC

ROBODRILL

α-DiB Plus series | α-DiBADV Plus series
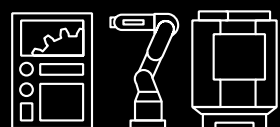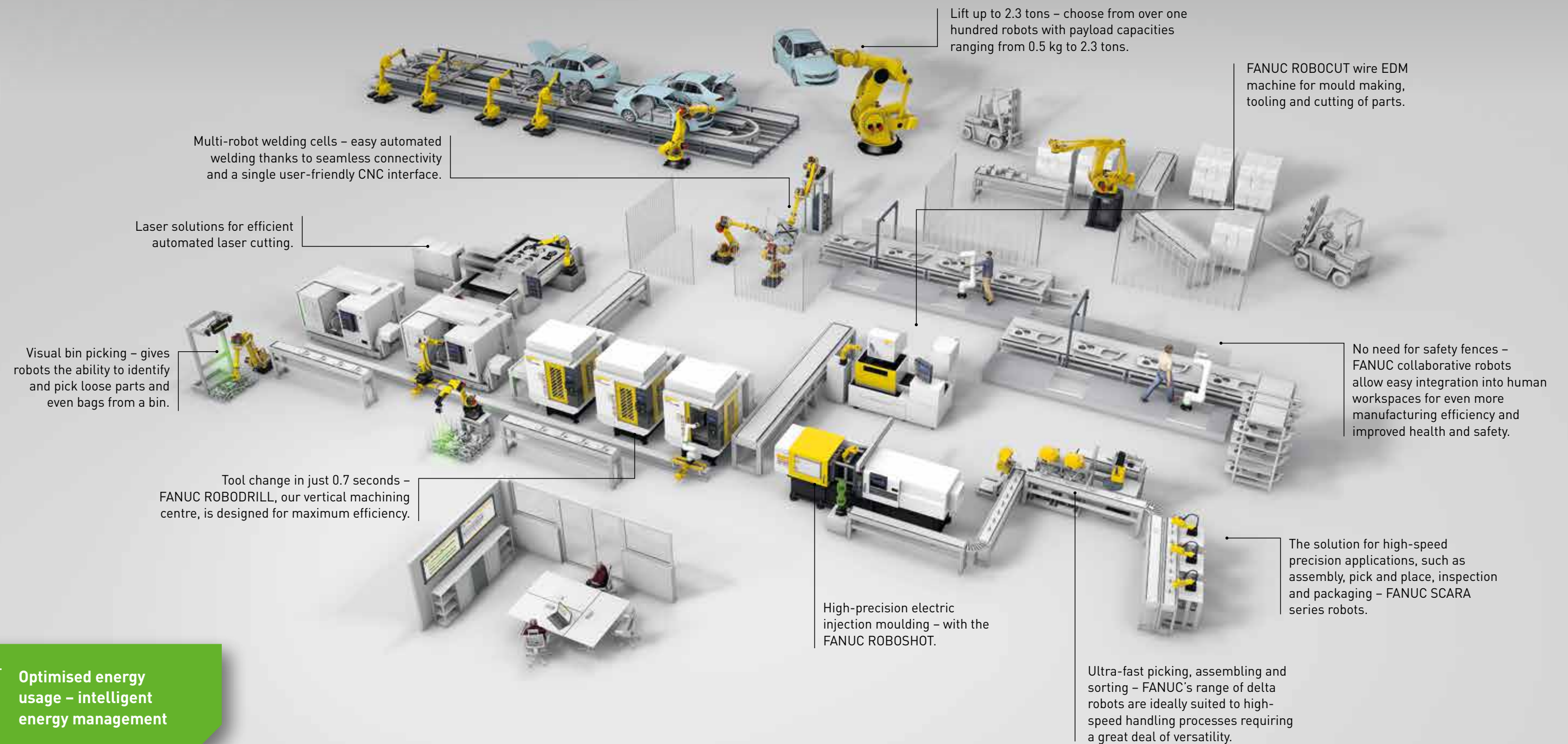
High-performance vertical machining centre

Automated machining
for more versatile milling,
drilling and tapping

WWW.FANUC.EU

*i*ntelligent automation – 100% FANUC

Lift up to 2.3 tons – choose from over one hundred robots with payload capacities ranging from 0.5 kg to 2.3 tons.

FANUC ROBOCUT wire EDM machine for mould making, tooling and cutting of parts.

Multi-robot welding cells – easy automated welding thanks to seamless connectivity and a single user-friendly CNC interface.

Laser solutions for efficient automated laser cutting.

Visual bin picking – gives robots the ability to identify and pick loose parts and even bags from a bin.

No need for safety fences – FANUC collaborative robots allow easy integration into human workspaces for even more manufacturing efficiency and improved health and safety.

Tool change in just 0.7 seconds – FANUC ROBODRILL, our vertical machining centre, is designed for maximum efficiency.

The solution for high-speed precision applications, such as assembly, pick and place, inspection and packaging – FANUC SCARA series robots.

High-precision electric injection moulding – with the FANUC ROBOSHOT.

Ultra-fast picking, assembling and sorting – FANUC's range of delta robots are ideally suited to high-speed handling processes requiring a great deal of versatility.

Optimised energy usage – intelligent energy management

With three core product groups, FANUC is the only company in its sector to develop and manufacture all its major components in-house. Every detail, both hardware and software, undergoes stringent quality control checks as part of an optimised chain. Fewer parts and lean technology make FANUC solutions reliable, predictable and easy to repair. They are made to run and provide you with the highest uptime on the market.

All FANUC products – industrial robots, CNC systems and CNC machines – share a common servo and control platform, providing seamless connectivity and making full-automation scenarios really simple. Since all products share common parts, spare parts management with FANUC is fairly efficient. Plus, global standards make it very easy to go international with FANUC.

ROBODRILL – Versatility beats size. Intelligence surpasses raw power.

The new-generation ROBODRILL promises unrivalled quality and precision at great hourly rates. With an unbeatable tool change time of 0.7 seconds and a turret capable of handling tools weighing 4 kg, the new advanced version is the fastest and strongest vertical machining centre on the market. With the shortest cycle times on most machining operations, all ROBODRILL machines are real high-speed all-rounders, offering incredible performance and unbeatable efficiency.

Breakthrough advances of the new ROBODRILL α-DiB Plus

- **ultrafast tool changer**
- **extraordinarily stable machining and accuracy**
- **easy automation**
- **optimal acceleration and deceleration control for increased efficiency**
- **improved ergonomics**
- **enhanced intelligence**
- **future-proof investment**
- **latest CNC and servo technology for energy saving**

More than
50
years of ROBODRILL technology

designed and built in Japan

The efficient all-rounder for a wide range of industries

When it comes to new products or changing product numbers, ROBODRILL's inherent versatility becomes a tangible asset. Instead of relying on a dedicated transfer machine, spreading your machining across several ROBODRILLs allows for higher flexibility across a wide range of applications and industries – saving you money in the process.

Designed to adapt to your every need, FANUC ROBODRILL has a flexibility that covers 3, 4 or even 5 simultaneous axes, thus representing an excellent supplement to your production facilities. Free up larger vertical machining centres for bigger jobs by using our CNCs to absorb extra demand.

For the electrical and watch industry

Electrical and watch industry applications often require tiny holes drilled in precision components such as disk enclosures and watch plates. To do this, ROBODRILL comes with a finely balanced spindle to ensure a very high degree of repeatable accuracy. To maximise precision on applications of this kind, ROBODRILL also includes a tool cleaning unit. Cleaning both the tool and spindle during tool changes, this feature vastly improves repeatability.

For the medical industry

Despite their complexity, medical equipment and implants often require finishing to exceptionally high standards. ROBODRILL has several different features designed to drastically reduce cycle times and make achieving these perfect surfaces easy. These include 5-axis functionality such as High-Speed Smooth TCP (a feature that radically improves surface quality by compensating for tool direction to avoid stripes), Tool Centre Point Control (TCP) and Tilted Working Plane.

For the e-mobility industry

Aluminium is essential for e-mobility, not least due to its lightweight properties. ROBODRILL proves ideal for use with aluminium parts, given the repeatable accuracy provided by its finely balanced spindle. In addition, ROBODRILL also offers flexible machining concepts, allowing you to react quickly in case of changing customer demands or designs.

For the automotive industry

Mass-producing parts for the automotive industry requires versatile machining centres. Combining speed and replicable accuracy, ROBODRILL produces flawless parts with minimal downtime, fast cycle times, and quick acceleration. In the light of rapidly changing production runs, programming and setup are just as easy as maintenance and operation – thereby minimising cost and maximising availability. Moreover, ROBODRILL's on-board monitoring ensures that preventive maintenance is focused, timely, and necessary.

For the toolmaking industry

Toolmaking necessitates high machining stability over extended periods. At the same time, it is about accuracy and surface quality. FANUC ROBODRILL provides the perfect combination of high-speed precision machining and accurate, repeatable positioning. This makes it the ideal solution for high-volume applications in the mould and toolmaking industries. Precision is further enhanced by intelligent functions such as Nano Smoothing, High-Speed Smooth TCP, or Servo Compensation.

The multipurpose solution to your efficiency needs

Designed to meet every need, the ROBODRILL α-DiB Plus series comprises completely re-designed models in S, M and L sizes, available in either standard or advanced versions. With a rigid servo drive control and a highly dynamic BBT30 spindle, these high-speed all-rounders are suitable for all vertical machining applications, from short production runs requiring fast turnaround times to flawless mass production. Its future-proof versatility and easy adaptability make the ROBODRILL the best-selling machine in its class.

α-D21SiB5 Plus

α-D21MiB5 Plus

α-D21LiB5 Plus

α-D28LiB5ADV Plus Y500

High-performance cutting

Maximise productivity with the ROBODRILL α-DiB Plus series thanks to its consistently high speed, precision, and power. In addition, stable machining enables optimised yield of the workpiece, while ROBODRILL's versatility allows for a wide range of applications.

Maximising uptime

A machining centre you can count on – the ROBODRILL α-DiB Plus series combines high reliability with high maintainability and preventive maintenance applications. For minimal trouble. And maximum operation life.

Ease of use

Using the ROBODRILL α-DiB Plus series is a breeze. The excellent user interface allows for quick and easy utilisation of ROBODRILL's wide-ranging functionality, and operating peripheral equipment becomes entirely stress-free thanks to the series' exceptional level of expandability. A case in point: The automation support function makes the integration of other FANUC robots exceptionally easy.

Cycle time reduction

Tool-to-tool changes on ROBODRILL α-D*i*B Plus models are extremely fast – ranging from 0.9 seconds on our standard versions to an incredible 0.7 seconds on the advanced. Cut to cut means 1.5 seconds for standard and 1.3 seconds for advanced versions. That's the secret to our speed machine!

Fast cycle time reduction

The latest FANUC CNC, Series 31*i*-Model B Plus, provides you access to our Smart rigid tapping feature: Reduce tapping cycle time by utilising the spindle motor's maximum output without sacrificing accuracy. For further cycle time reduction, the smart overlap function avoids speed-down at the transition between rapid traverse and cutting feed with overlapping command blocks.

Canned cycle for ROBODRILL

FANUC'S ROBODRILL CNC offers you pre-installed programming techniques provided by expert engineers – for even faster cycle times. Quick and easy programming rounds off ROBODRILL's user-oriented accessibility.

ATC and table motion overlap

The latest ROBODRILL's iteration lets you achieve further cycle time reduction, specifically by allowing for overlapping tool change motion and table positioning.

High-speed SKIP interface

Benefit from the latest SKIP interface! With the optional touch probe or tool measurement switch, the Series 31*i*-Model B Plus now lets you realise high-speed and high-accuracy measurements.

Expanding application range

Max. fixture size
Range of axis travel

Expanding machining area
With up to 400 mm Z-axis stroke expansion, ROBODRILL improves the approach to the machining point, while at the same time providing less interference structure with large fixtures.

Table load capacity 400 kg*[1]
ROBODRILL's advanced table load capacity applies to large fixtures and workpieces for maximum versatility.
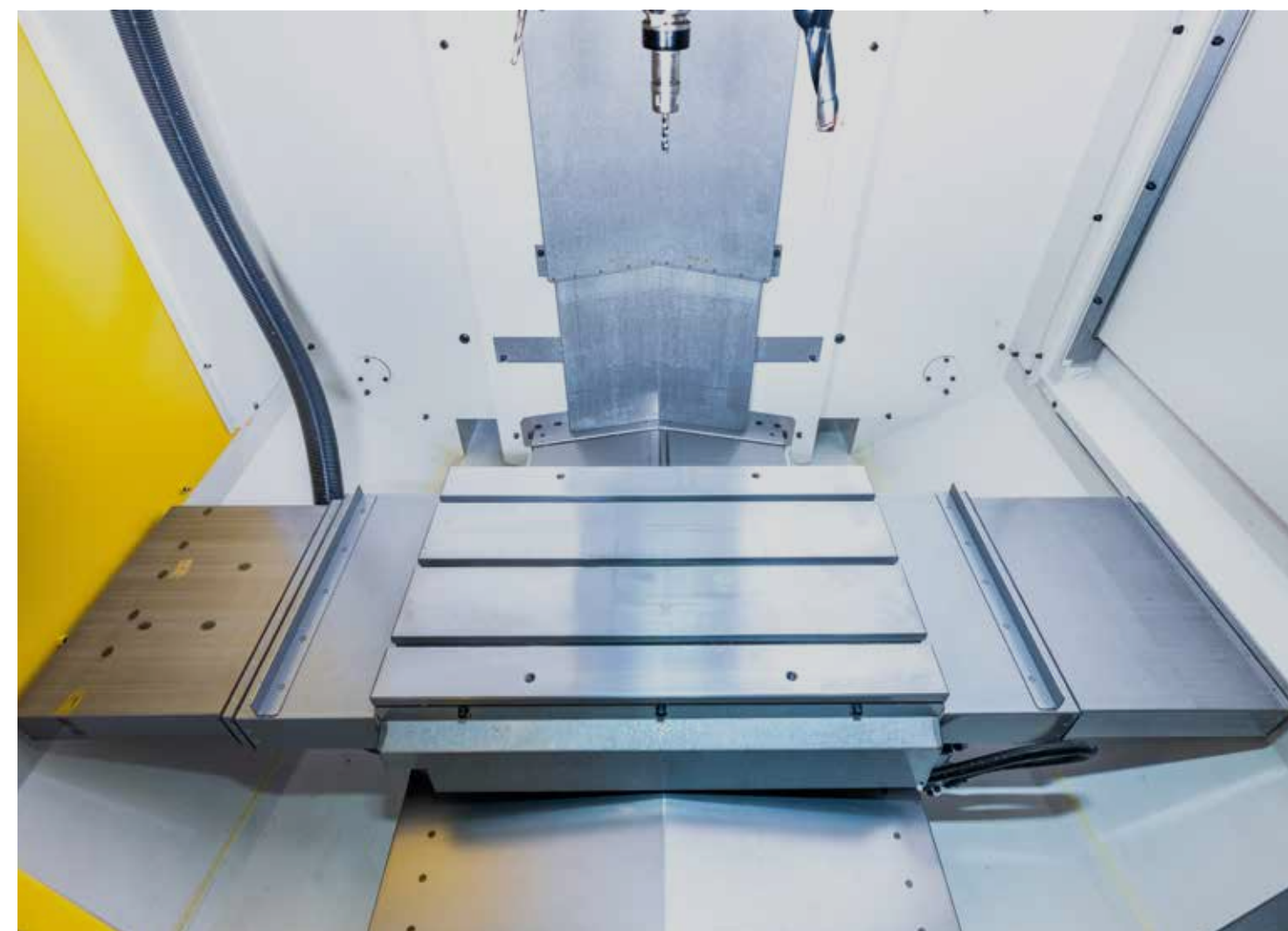
High column (optional)*[2]
Available for a wide range of applications, the column can be raised up to 400 mm, depending on fixtures.

Servo turret
The servo turret features a maximum tool weight of 4 kg, enabling an overall larger cutting tool, and reducing tool change time by 0.2 s compared with the standard version ROBODRILL.

For advanced models only

	α-D21S*i*B5ADV Plus	α-D21M*i*B5ADV Plus	α-D21L*i*B5ADV Plus	α-D28L*i*B5ADV Plus Y500
Max. fixture size (X)	640 mm	1050 mm	1400 mm	1400 mm
Max. fixture size (Y)	520 mm	620 mm	620 mm	610 mm

Network function

On-board multifunction Ethernet
Use the fast on-board Ethernet port for high-speed data transfer. Together with the standard Ethernet port, the CNC can also be connected with two different networks at the same time for further flexibility. To make system integration even more accessible, various Ethernet cable-based network protocols such as FL-net, EtherNet/IP, PROFINET, or Modbus/TCP are also supported.

Field network (optional)
By adding the optional board on the CNC, other field networks such as CC-Link, DeviceNet, PROFIBUS-DP also become available for even more flexible connectivity.

Network manager screen
By unifying screens for network settings, connection guidance helps connect PC software such as Program Transfer Tool or FANUC LADDER III (PC software) – thus improving overall operability. In addition, the detailed setting screen supports multiple networks connection assignments using visual guidance.

Excellent chip countermeasure

Optional for standard models

Z-axis telescopic cover
Featuring a compact design for less interference, ROBODRILL applies a new telescopic cover for overall higher durability.

Y-axis front mountain-shaped telescopic cover*[3]
ROBODRILL's Y-axis cover provides enhanced protection against chips and coolant, while smooth coolant flow simultaneously improves chips evacuation.

X-axis telescopic cover with 3 pieces*[4]
With a 3-piece design equipped as standard, the X-axis telescopic cover allows for higher reliability through structural improvements.

Enhanced cover around spindle motor (optional)*[5]
Protection from chips and coolant also benefits the spindle motor. To achieve this, the enhanced cover separates the spindle mechanism from the machining area, resulting in a high level of sustainability.

*[1] Max. 200kg for α-D14S*i*BADV Plus/D21S*i*B ADV Plus | *[2] Max. 200mm for α-D14S*i*BADV Plus/D21S*i*BADV Plus
*[3] Except for α-D14S*i*BADV Plus/D21S*i*BADV Plus | *[4] Except for α-D14S*i*BADV Plus/D21S*i*BADV Plus | *[5] Basic top cover (optional) necessary

# Wide variety of high-speed and high-power spindles

High-rigidity machine structure and optimised combinations of spindle unit and spindle motor enable excellent milling ability in addition to high-speed drilling and tapping.

Machining capability

	Machining	Drilling Tool dia. (mm) x Feed (mm/rev)			Tapping Tap size x Tap pitch (mm)		
	Material	S50C	FC200	ADC12	S50C	FC200	ADC12
Spindle spec.	High torque	Dia. 30 x 0.15	Dia. 30 x 0.30	Dia. 32 x 0.40	M20 x 2.5	M27 x 3.0	M30 x 3.5
	High speed	Dia. 20 x 0.10		Dia. 22 x 0.25	M16 x 2.0		M24 x 3.5

Spindl spec	Max. Speed	Application
High torque	10000 min⁻¹	Heavy machining of steel parts (Max. 100N-m)
High speed	24000 min⁻¹	High speed machining with small diameter tools

Spindle output 10,000 min⁻¹ (high torque)

### Spindle output 24,000 min⁻¹ (high speed)
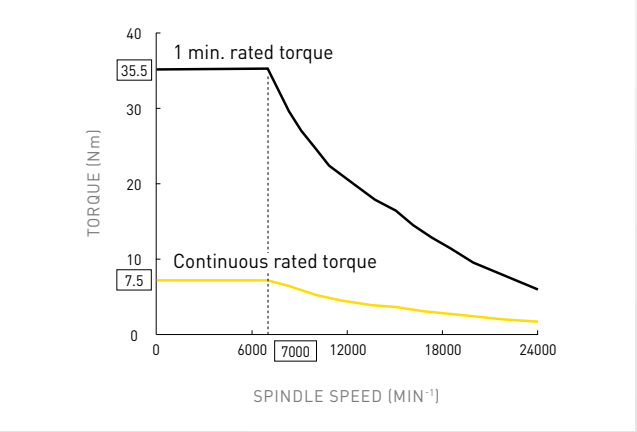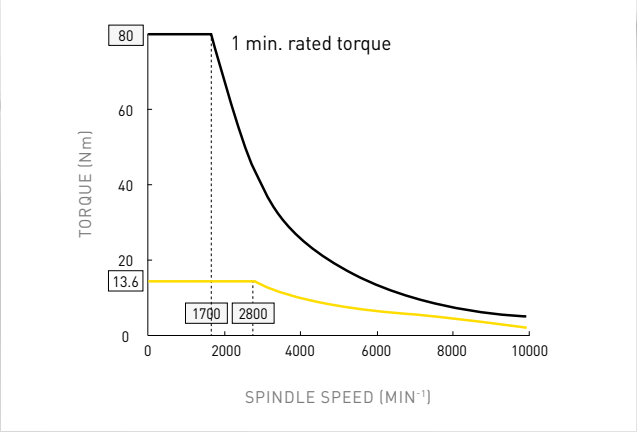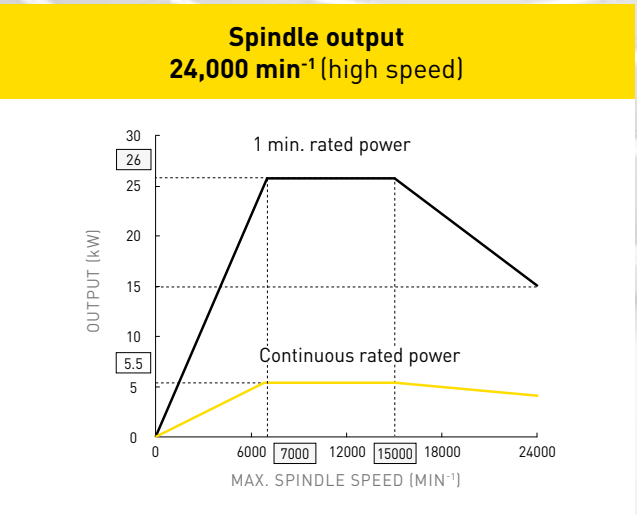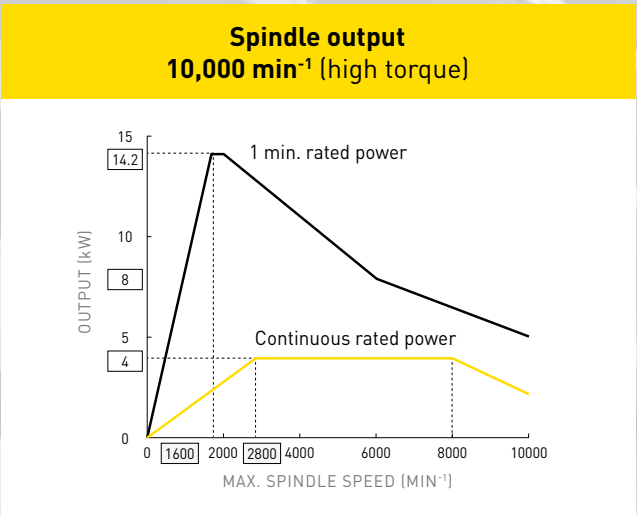
Stable machining

Thermal displacement compensation
Taking the operation status of the spindle and feed axis as a starting point, ROBODRILL estimates the thermal displacement and provides real-time compensation.

Moreover, the optional touch probe can automatically adjust the compensation effect from the measurement result.

AI thermal displacement compensation II (optional)
With the AI option, thermal displacement is estimated even more precisely thanks to temperature sensors around the spindle head and the column.

off on
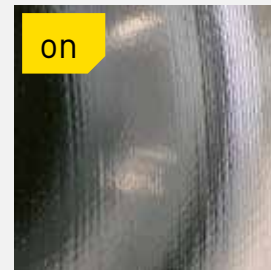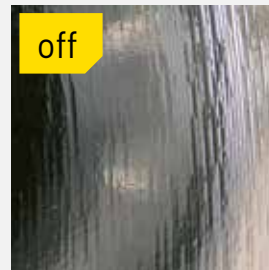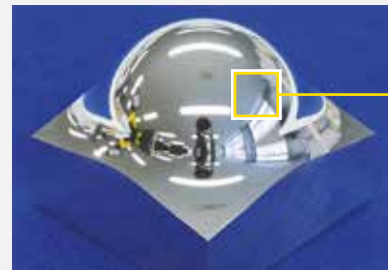
Example of high-precision programme command

off on
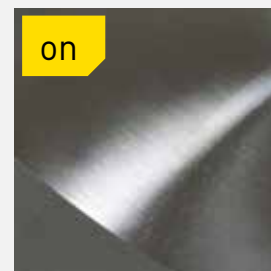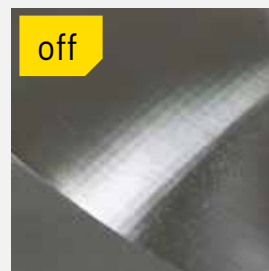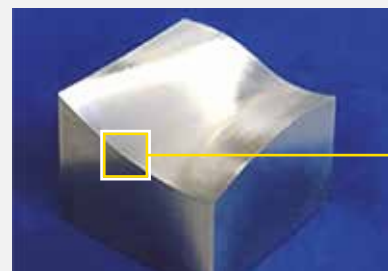
Example of smooth tolerance+ control

High-precision and fine-surface machining

Improve machining accuracy and surface quality even further – with the latest CNC and Servo functions.

SERVO HRV+ control
Achieve maximum responsiveness with the help of optimised electrical controls.

High-precision programme command
Absolute precision machining with input system of 0.1 μm.

Smooth tolerance+ control
ROBODRILL smooths the tool path with short line segments, while simultaneously reducing the steps between adjacent paths – resulting in fine surfaces across the spectrum.

Future-proof investment

Keep downtime to an absolute minimum – with FANUC's legendary reliability and easy-to-handle preventive maintenance. Moreover, thanks to their extreme longevity, ROBODRILL machines provide an unbeatable return on investment.
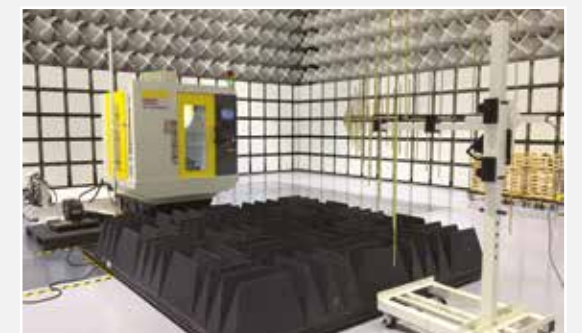
Endeavour to enhance reliability

- Reliability-oriented product development under the slogan of "Reliable, Predictable, Easy to Repair".
- Promoting further improvement of reliability by FANUC's original reliability development method such as accelerated life test.

Reliability evaluation building

- Simultaneous multiple accelerated life tests are carried out in the vast experiment area.
- Dedicated test rooms such as the anechoic chamber, EMS test room, vibration test room etc. are utilised for evaluation tests under various conditions.

Abundant track records at FANUC in-house factory

- More than 200 units of ROBODRILLs are working 24 hours at FANUC's in-house factory for both steel and aluminium parts machining.
- Achieving high reliability by analysing the operation and maintenance data and returning to ROBODRILL design.

Complete preventive maintenance

Maintenance information management

For effective periodical maintenance, ROBODRILL helps you monitor the condition of maintenance items, or announces the abnormality of maintenance timing. Additionally, up to 10 maintenance items can be customised to keep downtime to a minimum.

Leakage Detection Function

Get ahead of the breakdown: Preventive maintenance lets you detect insulation resistance drops for each motor and motor power cable early on.

Fan Monitor Function

With its monitoring function, ROBODRILL keeps an eye on the cooling fans for the servo and spindle amplifiers as well as the power supply. Once the rotation speed of any cooling fan is dropping, the system sends an alarm ahead of further failure, making it easy to detect the abnormal fan and prevent unnecessary downtime.

All-in-one solution
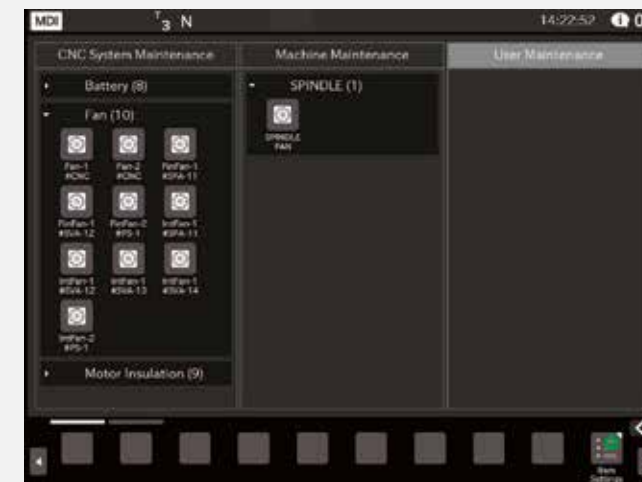# for boosting production efficiency

The FIELD system Basic Package (FsBP) is a comprehensive platform designed to drive production improvements by bridging the gap between data and productivity. FsBP connects machines, robots, and peripheral devices in your factory, allowing to collect, store, and visualise data. This provides valuable insights into the production process and historical data. The data collected by FsBP is easily accessible through multiple standard interfaces (OPC-UA, REST API, CSV or others like MQTT via Node-RED) enabling customers to improve their productivity and processes.

FsBP benefits:

- Immediately ready to collect and manage data from FANUC CNCs, FANUC robots and non-FANUC equipment
- Work hassle-free on-premises, without the need for an Internet connection
- Improve productivity and quality by tracing process parameters and conditions
- Detect inefficiencies in machine utilisation and improve uptime with diagnostic functions
- Reduce costs by monitoring energy consumption
- Manage CNC programs & set/get CNC Macro Variables via API

- Use preconfigured templates or modify the system based on your individual needs

Specific ROBODRILL functions

- ROBODRILL machine signals collection
- Real-time dashboards available
- Tool life monitoring
- Periodic maintenance monitor

High maintainability

Recovery guidance screens

Whenever unforeseen downtime occurs, instructions on each screen allow you to easily recover vital functions such as turret position or motor origin.

Maintainability improvement for I/O devices

In case of I/O device failures such as disconnection or earth fault, cause and location play an important role – ROBODRILL CNC identifies both, and lets you know.

Machine configuration to improve parts replacement

Discover easy parts replacement with our cartridge-type fan motor units.

Rechargeable battery unit (optional)

The rechargeable battery unit not only supplies both the CNC and the Pulsecoder with steady backup power, but is also maintenance-free and automatically recharged while ROBODRILL is on.

High usability

Operators' panel with 10.4" Color LCD for *i*HMI

Thanks to the integrated *i*HMI technology, ROBODRILL offers an intuitive and operable interface. As a complement, the panel features a seamlessly flat display unit capable of high resistance to coolant oil. In addition, a touch panel type display is available as an option, should you wish to upgrade.

Easy to operate from *i*HMI home screen

Guidance on the home screen is divided into four main categories. Users can choose from:
• Planning – Set up screens for optional devices, network settings, or parameter management
• Machining – Manage CNC programmes and robot operations
• Improvement – Management screens include production counter, machining mode, and thermal displacement compensation among others
• Utility – Choose from various useful ROBODRILL functions

PDCA cycle support through *i*HMI CNC operation screen

The *i*HMI screen can realise a series of operations, from programming to machining – all in one display. Ease of use continues to be at the centre of the user experience: Creating programmes with the *i*HMI Machining Cycle is a breeze thanks to graphic guidance, while machining simulations with 3D solid models make checking programmes easier than ever. Rounding things off is our *i*HMI Set-up Guidance, providing various measurement cycles with touch probes.

Upgrade for your user experience

Favourite screens

ROBODRILL now offers you to save frequently used screen setups as favourites in a specific favourites menu. To further enhance versatility, these settings can easily be imported to or exported from other ROBODRILL devices – for maximum usability.

Custom screens

With the new custom screens feature, you can register up to 15 FANUC PICTURE applications. At the same time, the feature allows for controlling peripheral devices using our custom PMC function, with various exclusive third-party screens available.

Save time – the smart way

ROBODRILL is designed to make work easy and save you time in the process. Thanks to a whole range of smart features, operations are intuitive, setups are managed in no time, and daily maintenance is more convenient than ever.

On-board multifunction Ethernet

Fast Ethernet function is available for high-speed data transfer to network server etc.
Applying various network protocols using Ethernet cable such as FL-net, EtherNet/IP, PROFINET.

External interface function

General I/O signals such as external start are ready to use only by assigning in the screen.
Configuration of signal can be set on the screen.

Custom PMC function

When it comes to peripheral devices, ROBODRILL's custom PMC function enables you to create and monitor LADDER programmes on screen, and to expand the number of I/O signals whenever necessary (Standard: Input 16 / output 16, maximum: Input 1024 / output 1024).
With respect to FANUC's Dual Check Safety (DCS) solution, the custom PMC function also lets you connect the safety I/O signals of peripherals (input 12 / output 8), while also allowing for software safety circuits with duplicated signals.

Custom control panel

With its custom control panel, ROBODRILL offers a flexible and cost-efficient solution for simple system integration. Create on-screen switches (ON/OFF or pulse setting) and indication lamps to operate peripheral devices – without the need to integrate additional control panel hardware.

Custom screen

Our new custom screens feature now lets you register up to 15 FANUC PICTURE applications. At the same time, the feature allows for controlling peripheral devices using our custom PMC function, with various exclusive third-party screens available.

Designed for easy automation

ROBODRILL's compact design and easy accessibility from all sides make it ideally suited to trouble-free machine tending. Adding tending robots is easy thanks to our Robot Package. All FANUC products speak the same language and share a common servo and control platform – something that makes learning and operation extremely easy. For more demanding automation scenarios, FANUC's comprehensive network of dedicated European partners possesses the know-how and technical expertise you need to create the ideal solution for your production facility – no matter what your application or industry.

Your efficiency benefits:

- easy all-round access for robots
- Robot Package with tending robots
- high-speed automatic front and side doors that open in just 0.8 seconds
- versatile interfaces

Simple robot integration via Robot Package

ROBODRILL has been designed for easy automation and comes with an ergonomically designed work area as well as easy robot access for loading heavier workpieces and hassle-free machine tending. The optional ROBODRILL Robot Package helps with fast, uncomplicated automation and covers FANUC robots, robot interface, robot stand, safety fence, robot sample program etc.

FANUC's comprehensive network of dedicated European partners possesses the technical know-how to provide a solution that is tailored to your specific automation needs. Additionally, third-party automation systems are seamlessly connectable to FANUC machines via the new robot interface.

High-precision control

The world's most reliable CNC FANUC 31*i*-B5 Plus is at the core of ROBODRILL. User-friendly and easy to programme, it contains twenty easy-to-configure M-codes to control additional devices. Further customisation is achievable via the custom PMC function.

CF card

USB

Easy-to-clean membrane keyboard

Optional integrated 5-axis functions

Manual pulse generator

- 10.4" colour display
- intuitive *i*HMI screen
- easy data input and minimal keypad entry
- improved interface to robot operation screen

- precise predictive maintenance
- easy auto programming
- easy-to-use control screen
- supports multiple languages

Optimised data compatibility

- Ethernet interface
- USB interface
- CF card slot

Designed to save energy

FANUC ROBODRILL delivers considerable energy savings compared to its larger rivals. In addition to numerous intelligent features designed to reduce energy consumption, every component has been chosen to provide the highest possible performance for the least possible energy. Power used by the servo, spindle and peripheral devices is calculated by software and displayed on the Energy Saving Screen, enabling you to monitor and optimise power consumption.

Proven power regeneration function

- Power regeneration function that regenerates the energy at deceleration of motors has been adopted since 1994
- Regenerated power is used by other equipment and contributes to reduce power consumption of entire factory

Electric power consumption monitor

- Energy saving setting for ROBODRILL and option devices is available
  - Automatic power-off function
  - Screen saver, illumination, coolant pumps, lubrication and spindle air purge
  - Energy saving mode of Servo system, rigid tapping*
- Energy saving effect can be confirmed by the consumption record

* Limits motor output at acceleration/deceleration to reduce consumption. Cycle time becomes longer relatively.

Optimised energy usage – intelligent energy management

Customise your ROBODRILL

Enhance the productivity of your ROBODRILL and experience an enormous spectrum of applications. FANUC's range of dedicated software and hardware accessories gives you the freedom to create bespoke machining processes – tailor-made to fit your specific needs.

Like all our products, FANUC accessories combine world-beating reliability with industry-leading ease of use, designed to help you get the most out of your ROBODRILL.

No matter how challenging your machining processes may be – FANUC accessories allow you to increase output while maintaining consistently high quality standards.

Touch probe system

ROBODRILL can be equipped with state-of-the-art touch probes and third-party tool measurement devices – for contract-free tool breakage monitoring as well as measuring tools and workpieces exactly.

Robot Interface 2

Thanks to FANUC's Robot Interface 2, constructing machining cells with safety issue is not just easy, but also inexpensive. Connect four ROBODRILLs and one ROBOT without an additional system controller – the entire control software necessary is already included in the ROBODRILL PMC. In addition, the robot controller supports automatic side or front doors.

Custom PMC

ROBODRILL's custom PMC features easy-to-create LADDER programmes for peripheral devices, including the ability to set LADDER program I/O and customise I/O signals. The custom control panel includes the ability to monitor the status of peripheral devices, control the ON/OFF on machining programmes as well as create ON/OFF, lamp, and pulse switches. In addition, using the panel makes peripheral devices easy and inexpensive to construct and maintain.

Machining Mode Setting Function

Using this feature, it is possible to set and optimise machining and energy modes according to the programme. Servo parameters can be altered to suit machining conditions and machining mode parameters which are changed via M-code during machining in order to create the ideal conditions for processing.

Preventive Maintenance Guidance

Offering a complete overview of ROBODRILL's leakage detection functionality, our maintenance guidance screens flag issues with insulation resistance and power leakage early on, indicating the need for preventive maintenance and thus avoiding breakdowns. Equally, the screens support periodical maintenance through schedules and reminders. Moreover, these processes can also be easily customised to suit your exact needs.

AI Thermal Displacement Compensation

Easy to set up, this function significantly reduces machine warm-up times, while also ensuring accurate machining under thermal growth conditions that can affect dimensional accuracy. By monitoring the spindle's operational status, the function adjusts the machining process to compensate for any elongation that may occur.

Network interfaces

Ethernet makes networking ROBODRILL with personal computers and robots particularly easy, thanks to a variety of supported field networks and connections such as FL-net, EtherNet I/P and Profinet.

Additional axis interface (4/5 axes)

The standard 31*i*-B5 CNC is already capable of turning ROBODRILL into a 5-axis machine – all you need is the hardware and software option, simultaneous 5-axis control capability is already included. Using an additional servo amplifier and cable connector, various third-party rotary tables can easily be fitted to ROBODRILL. Furthermore, on applications involving rotary tables, FANUC Tilted Working Plane Indexing makes programming holes and pockets in tilted planes easier than ever.

Smoothing functions

FANUC ROBODRILL's Nano Smoothing functionality reduces the need for manual finishing on processes that require sculptured surfaces, such as mould machining. When it comes to processes such as die and mould machining which involve cutting complex part forms defined by numerous tiny programme blocks, ROBODRILL's look-ahead blocks expansion allows for higher precision machining. In addition, AI Contour Control I/II enables high-precision machining at optimal machining speeds, thereby eliminating errors and increasing feed rates.

AI Tool Monitor

ROBODRILL's AI Tool Monitor checks the spindle load during hole machining and issues an alarm in case of exceeded load parameters to prevent both breakages and costly downtime. Should breakages occur anyway, the AI Tool Monitor automatically stops the machine.

Heavy-duty machining

ROBODRILL isn't just for small parts. Thanks to ROBODRILL's strong spindle and rigid structure, it is also ideally suited to heavy-duty machining applications, including high-speed operations involving lots of swarf. ROBODRILL even takes large-diameter tools, usually only found on bigger machines.

Versatile 5-axis machining

To turn your ROBODRILL into a 5-axis machine, all you need to do is add the option package. Simultaneous 5-axis control and CNC-related requirements such as indexing and simultaneous operation are already in the CNC. Intelligent options such as look-ahead data sets, interpolation and smart smoothing functions mean you can manufacture top-quality moulds, electrodes and other 3D parts quickly and precisely.

FANUC ROBODRILL DDR*i*B
rotary table – the ideal add-on axis

Thanks to its direct-drive motor and improved rigidity for more accurate machining, the FANUC ROBODRILL DDR*i*B makes the perfect additional axis for your ROBODRILL. Benefits include an indexing time of just 0.55 seconds, ultrafast clamping and clamp torque of 700Nm. Extremely precise and reliable, the DDR*i*B also offers unbeatable value for money.
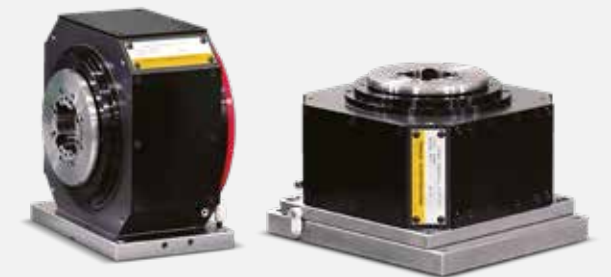
FANUC ROBODRILL DDR-HS*i*B
rotary table – experience the power
of high-speed and high-precision turning

Designed to integrate seamlessly with your FANUC CNC, the FANUC DDR-HS*i*B rotary table unlocks the full potential of turning functions. Benefits include unmatched indexing accuracy, powerful clamping force on par with the DDR*i*B model, and a user-friendly setup process with automatic servo parameter adjustment based on your workload.

FANUC ROBODRILL DDR-T*i*B
Excellence for parts up to 200 kg

When precision and power converge, exceptional machining becomes a reality.
FANUC ROBODRILL DDR-T*i*B, is the ultimate solution for machining parts weighing up to 200 kg with unprecedented accuracy and efficiency.

Unlocking Excellence

The highly rigid DDR-T trunnion system encompasses all the benefits of the DDR rotary table and includes a support spindle and L-brackets. With improved rigidity, you can achieve higher degrees of machining accuracy. Simply add the fixture plate, and watch your precision soar. The DDR-T's practical design ensures that your existing X-axis travel remains consistent with the 3-axis design.

Performance that inspires confidence:

- Max. rotation speed: 200 min^{-1} [*1]
- Indexing 180°: 0.34 s [*2]
- Clamp torque: (700+400) N·m
- Max. loading mass: 200 kg [*3]

[*1] When loading mass is under 100kg and workpiece inertia is under 1 kg * m2
[*2] When loading mass is under 50kg and workpiece inertia is under 0.5 kg * m2
[*3] Except DDR-TS*i*B. The maximum rotation speed is limited to 100 min^{-1}

FANUC ROBODRILL DDR-T*i*B features

- **Optimized space utilization**
  Maximize your ROBODRILL's workspace for efficient operations.
- **Enhanced rigidity**
  Achieve greater loading capacity by optimizing the casting body's shape.
- **Advanced clamp mechanism**
  Attain higher clamp torque with the new clamp mechanism of DDR*i*B and the support spindle.
- **Effortless setup**
  Enjoy initial settings and automatic parameter adjustments via the DDR setting screen

Seamless Integration

Effortlessly integrate the DDR-T*i*B into your machining process with these valuable options.
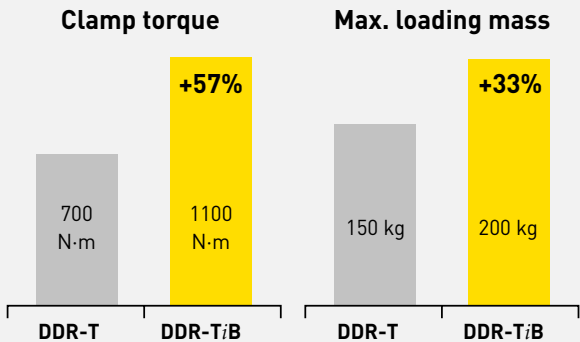
Rotary joint (DDR*i*B side)
Enhance your DDR-T*i*B setup's versatility with a rotary joint on the DDR*i*B side.
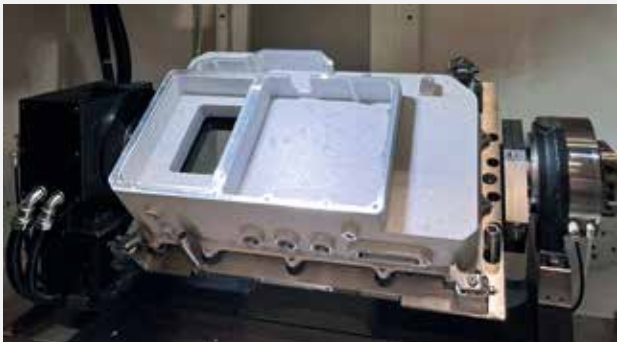
Rotary joint (Tail support side)
Further optimize your machining capabilities with a rotary joint on the tail support side
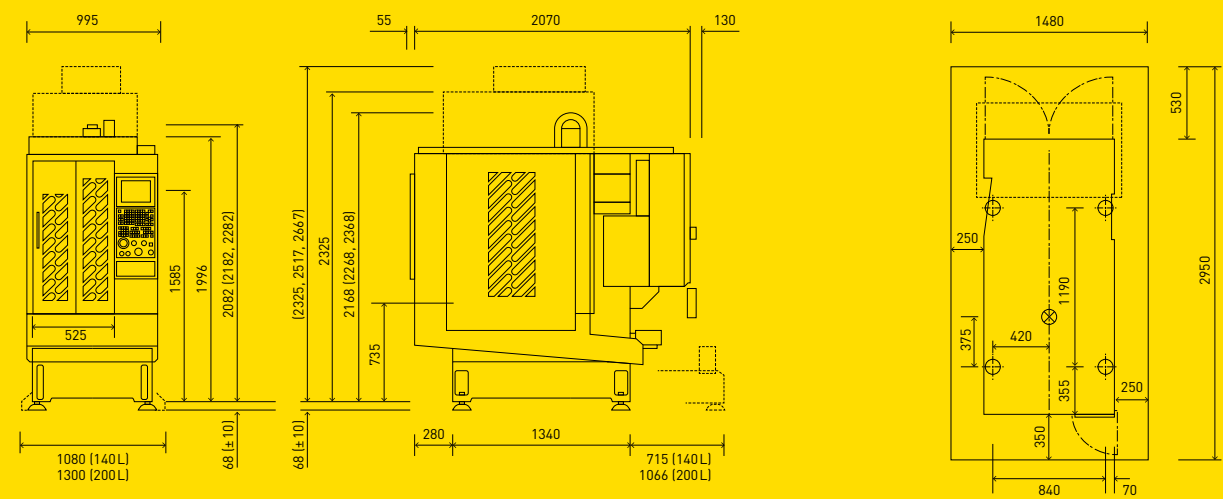
Comparison with the previous model

Clamp torque
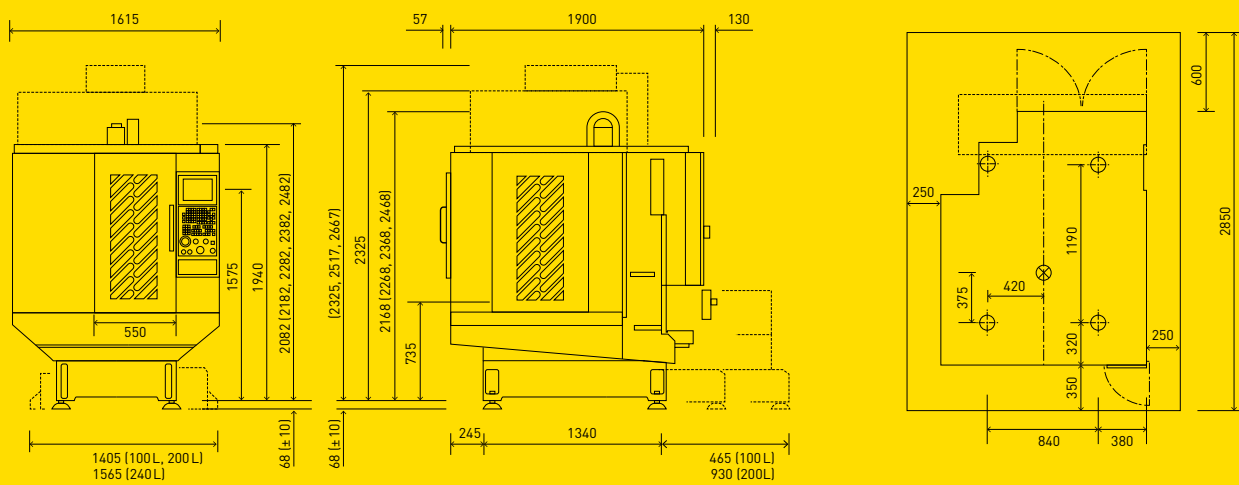
700 N·m	1100 N·m (+57%)
DDR-T	DDR-T*i*B

Max. loading mass

150 kg	200 kg (+33%)
DDR-T	DDR-T*i*B

Application example

Technical data standard models

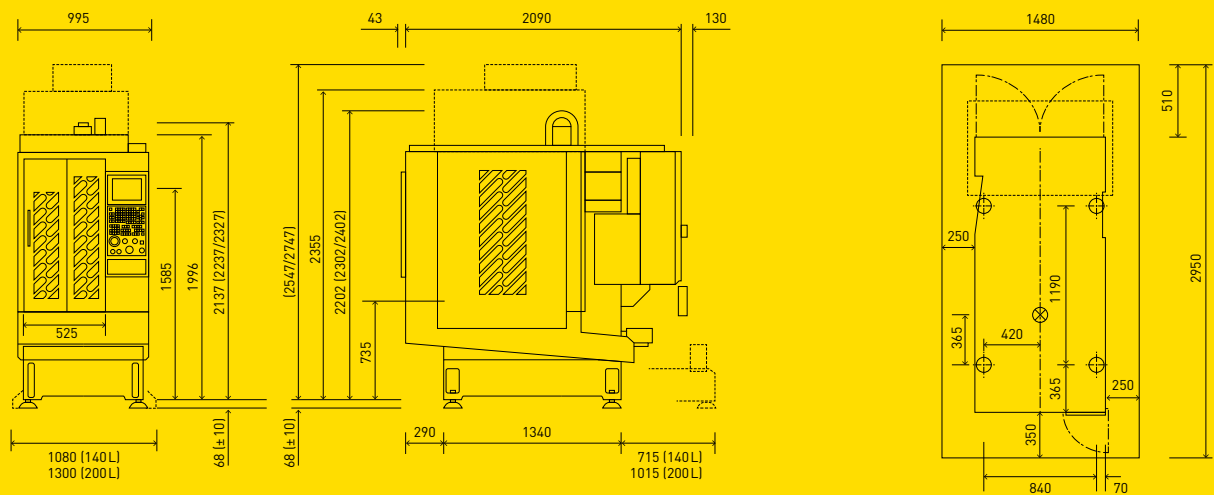## α-D21S*i*B5 Plus

α-D21M*i*B5 Plus
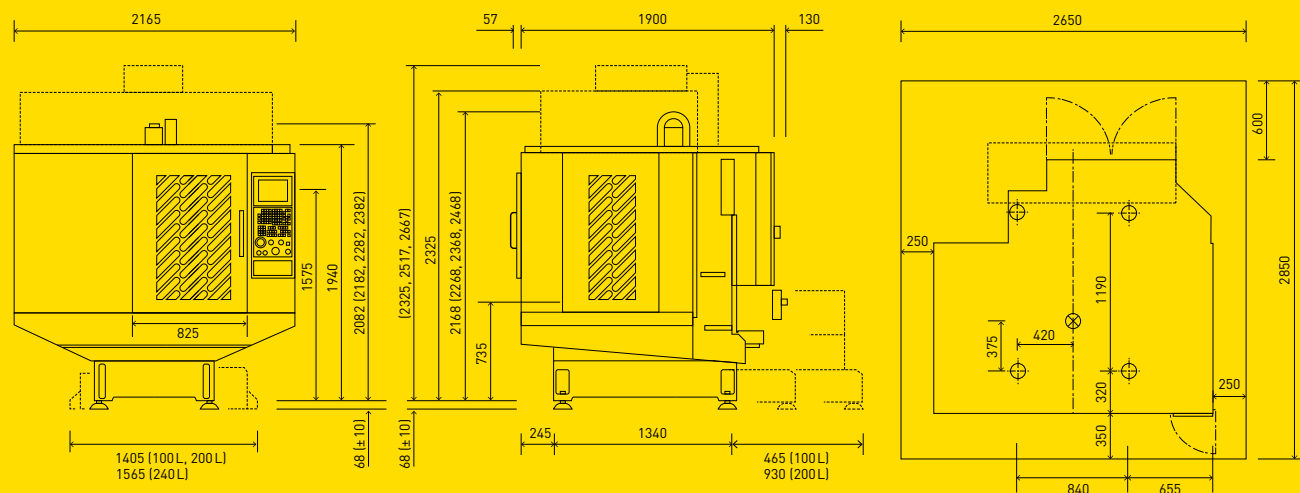
α-D21L*i*B5 Plus

ROBODRILL α-D*i*B Plus series		α-D21S*i*B5 Plus	α-D21M*i*B5 Plus	α-D21L*i*B5 Plus
Travel X/Y/Z	mm	300 x 300 (+100) x 330	500 x 400 x 330	700 x 400 x 330
Max. tool length (HC100)	mm	190	250 (depends on specifications)	
Max. tool diameter	mm	80		
Table size	mm	630 x 330	650 x 400	850 x 410
Max. table load	kg	200	300	
Max. tool mass	kg	3		
Distance from spindle nose to table (with HC100)	mm	250–580		
Controller		31*i*-B5 Plus		
Spindle speed	rpm	10000 | 24000		
Spindle load 10,000 rpm (1 min)	Nm | kW	80 | 14.2		
Spindle load 10,000 rpm (continuous operation)	Nm | kW	13.6 | 4		
Spindle load 24,000 rpm (1 min)	Nm | kW	35 | 26		
Spindle load 24,000 rpm (continuous operation)	Nm | kW	7.5 | 5.5		
Rapid traverse in all axes	m/min	54		
Maximum programmable cutting feed	mm/min	30000		
Number of tools		21		
Tool change time (2 kg-tool) (cut to cut)	s	1.6		
Spindle holder BT30		○		
Spindle holder BBT30		●		
Bidirectional accuracy of positioning of an axis (ISO230-2:1988)	mm	< 0.006		
Bidirectional repeatability of positioning of an axis (ISO230-2:1997,2006)	mm	< 0.004		
Air pressure consumption	L/min | MPa	160 | 0.35–0.55		
Machine mass/with DDR-T*i*B	ton	2/2.2	2/2.2	2.1/2.3

● Available ○ Optional

Technical data advanced models

α-D21S*i*B5ADV Plus
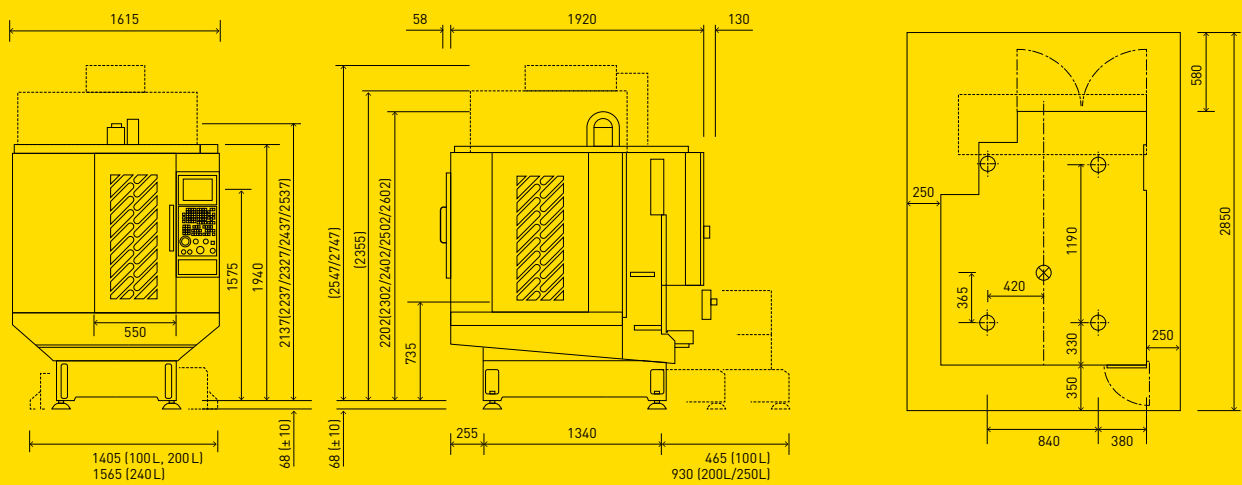
α-D21M*i*B5ADV Plus
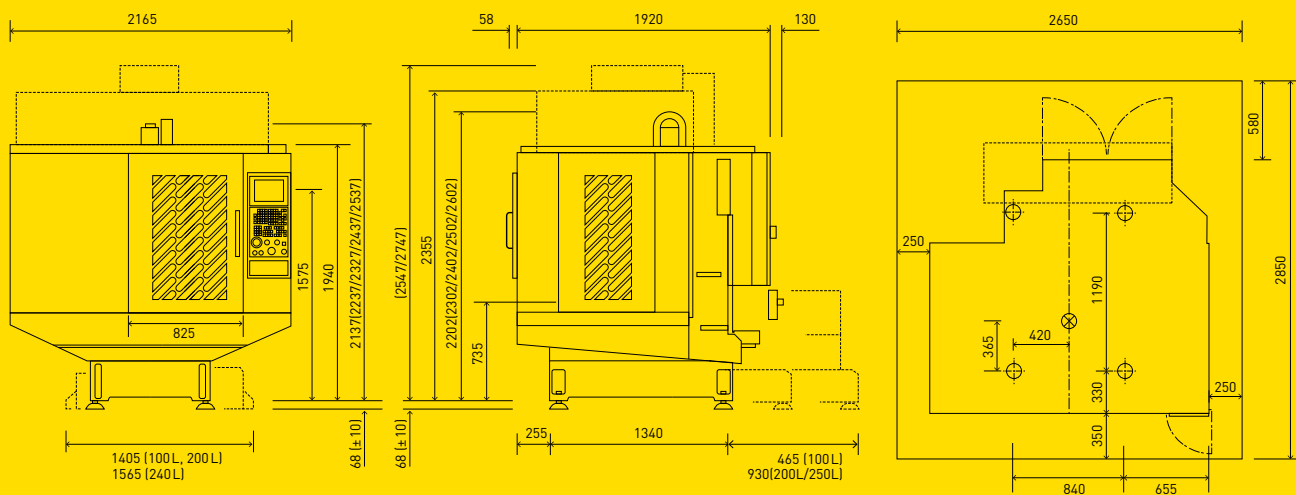
α-D21L*i*B5ADV Plus

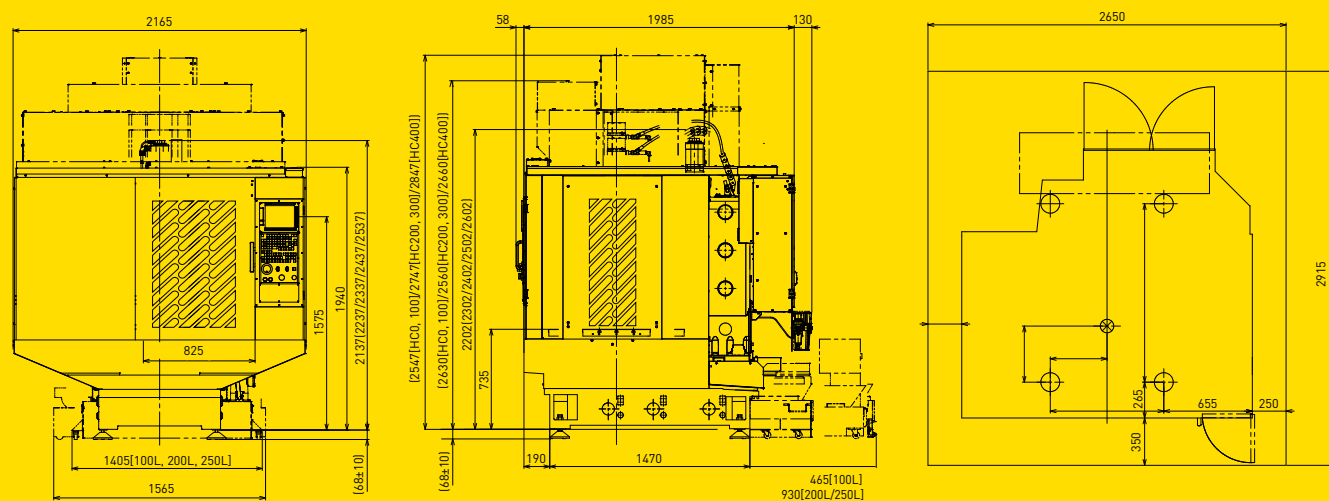| ROBODRILL α-D*i*B_{ADV} Plus series		α-D21S*i*B5ADV Plus	α-D21M*i*B5ADV Plus	α-D21L*i*B5ADV Plus
Travel X/Y/Z	mm	300 x 300 (+100) x 400	500 x 400 x 400	700 x 400 x 400
Max. tool length (HC200)	mm	90	250	
Max. tool diameter	mm	80		
Table size	mm	630 x 330	650 x 400	850 x 410
Max. table load	kg	200	400	
Max. tool mass	kg	4		
Distance from spindle nose to table (with HC200)	mm	280–680		
Controller		31*i*-B5 Plus		
Spindle speed	rpm	10000 | 24000		
Spindle load 10,000 rpm (1 min)	Nm | kW	80 | 14.2		
Spindle load 10,000 rpm (continuous operation)	Nm | kW	13.6 | 4		
Spindle load 24,000 rpm (1 min)	Nm | kW	35 | 26		
Spindle load 24,000 rpm (continuous operation)	Nm | kW	7.5 | 5.5		
Rapid traverse in all axes	m/min	54		
Maximum programmable cutting feed	mm/min	30000		
Number of tools		21		
Tool change time (2 kg-tool) (cut to cut)	s	1.3		
Spindle holder BT30		○		
Spindle holder BBT30		●		
Bidirectional accuracy of positioning of an axis (ISO230-2:1988)	mm	< 0.006		
Bidirectional repeatability of positioning of an axis (ISO230-2:1997, 2006)	mm	< 0.004		
Air pressure consumption	L/min | MPa	160 | 0.35–0.55		
Machine mass/with DDR-T*i*B	ton	2.2/2.4	2.2/2.4	2.3/2.5

● Available ○ Optional

Technical data advanced models (28 tools)

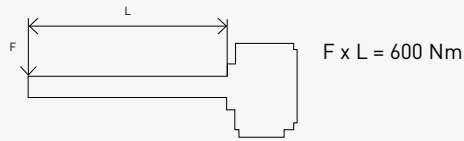## α-D28M*i*B5ADV Plus
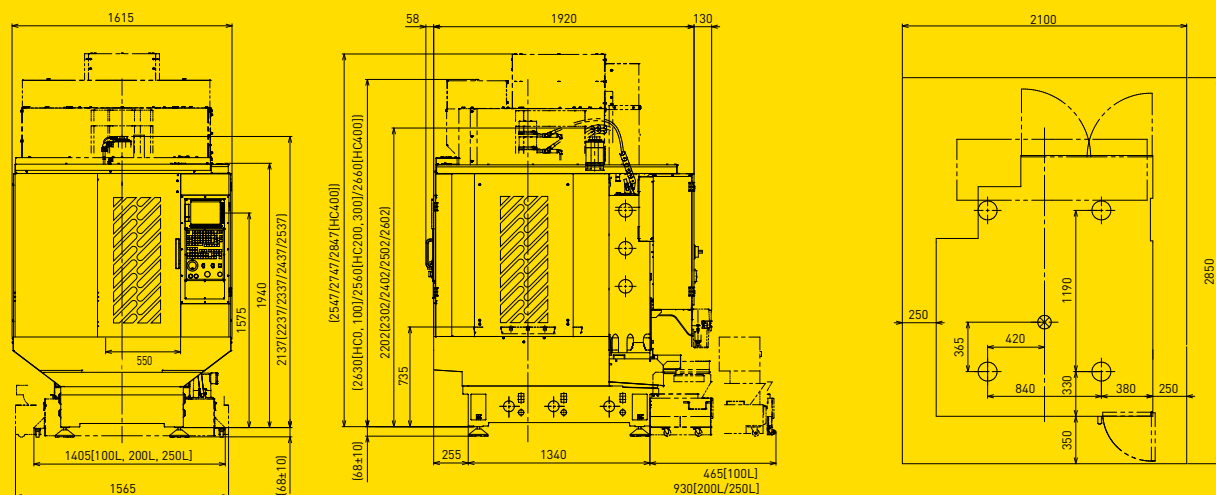
α-D28L*i*B5ADV Plus Y500

ROBODRILL α - D*i*B_{ADV} Plus series (28 tools)		α - D28M*i*B5_{ADV} Plus	α - D28L*i*B5_{ADV} Plus Y500
Travel X/Y/Z	mm	500 x 400 x 400	700 x 500 x 400
Max. tool length (HC200)	mm	250	
Max. tool diameter	mm	80	
Table size	mm	650 x 400	850 x 500
Max. table load	kg	400	
Max. tool mass	kg	4	
Distance from spindle nose to table (with HC200)	mm	280–680	
Controller		31*i*-B5 Plus	
Spindle speed	rqm	10000 | 24000	
Spindle load 10,000 rpm (1 min)	Nm | kW	80 | 14.2	
Spindle load 10,000 rpm (continuous operation)	Nm | kW	13.6 | 4	
Spindle load 24,000 rpm (1 min)	Nm | kW	35 | 26	
Spindle load 24,000 rpm (continuous operation)	Nm | kW	7.5 | 5.5	
Rapid traverse in all axes	m/min	54 (X, Y, Z)	54 (X, Y), 60 (Z)
Maximum programmable cutting feed	mm/min	30000	
Number of tools		28	
Tool change time (1.5 kg-tool) (cut to cut)	s	1.4	1.3
Spindle holder BT30		○	
Spindle holder BBT30		●	
Bidirectional accuracy of positioning of an axis (ISO230-2:1988)	mm	< 0.006	
Bidirectional repeatability of positioning of an axis (ISO230-2:1997, 2006)	mm	< 0.004	
Air pressure consumption	L/min | MPa	160 | 0.35–0.55	
Machine mass/with DDR-T*i*B	ton	2.2/2.4	2.3/2.5

● Available ○ Optional

Technical tables DDR*i*B/DDR-T*i*B

FANUC ROBODRILL DDR*i*B rotary table	Specifications	
Drive method	Direct drive	
Motor	Synchronous built-in servomotor D*i*S 50/300-B	
Continuous rating	46 Nm	
Maximum torque	275 Nm	
Table rotation speed	200 min⁻¹	300 min⁻¹
Maximum loading capacity	100 kg	25 kg
Permissible workpiece inertia [kg m2]	J = 1.0 kg m2 [GD2 = 4.0 kgf m2] I	J = 0.25 kg m2 [GD2 = 1.0 kgf m2]
Detector	Absolute Alpha*i*CZ sensor 512A	
Least input increment	0.0001 degrees (IS-C)	
Indexing precision	±0.0028 degrees (±10 s)	
Clamp method	Air pressure + spring	
Clamp torque	700 Nm for air pressure of 0.5 MPa	
	500 Nm for air pressure of 0.35 MPa	
	100 Nm when air pressure is shut off	
Rotating-part inertia	J = 0.04 kgm2 [GD2 = 0.16 kgf m2]	
Spindle outside diameter	Ø 90 mm	
	Ø 140 mm when the end plate (option) is mounted	
Spindle hole diameter	Ø 46 mm	
	Ø 55 mm when the end plate (option) is mounted	
Center height	150 mm	
Main body mass	80 kg	
Permissible moment load	F x L = 600 Nm	

FANUC ROBODRILL DDR-T*i*B	X300	X500	X700
Clamp torque	1100 Nm (for an air pressure of 0.5 MPa)		
Maximum Swing Ø	φ 310 mm	φ 410 mm	
Number of bracket ports (option)	6 (oil/air)		
Table rotation speed	200 min⁻¹	200 min⁻¹ I 100 min⁻¹ I 100 min⁻¹	
Maximum loading capacity	50 kg	100 kg I 150 kg I 200 kg	
Permissible workpiece inertia [Kg m²]	J = 0.5	J = 1.0 I J = 1.5 I J = 2.0	
Center height	200 mm	260 mm	
Main body mass	155 kg	190 kg	200 kg

DDR*i*B

DDR-T*i*B
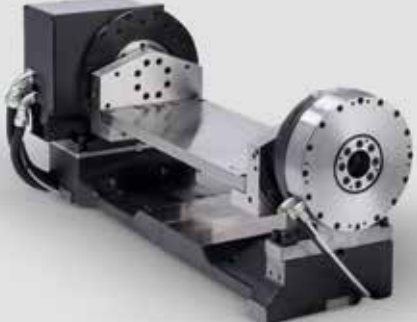
The swing plate is not included.

Technical Specification for FANUC ROBODRILL

Standard specifications

- Control unit FANUC Series 31*i*-B5 Plus
- Simultaneously controlled axes (Max. 5 axes)
- Multi-function Ethernet
- Control unit incorporated type display unit with 10.4" color LCD
- PCMCIA memory card port
- USB port (USB2.0)
- Part program storage size 4Mbyte
- Number of registerable programs 1000
- Addition of workpiece coordinate system 48 pairs
- Tool offset pairs 200-pairs
- Tool life management
- Production control counter
- *i*HMI Set-up Guidance (MANUAL GUIDE *i* on *i*HMI)
- Machining Mode Setting
- Thermal displacement compensation function
- Double contact tooling (BBT30/NBT30)
- Custom PMC
- Dual Check Safety
- Smart Trouble Shooting Function
- Leakage Detection Function
- Smart rigid tapping
- Spindle Smart Load Meter
- AI contour control I
- HRV control
- Rapid traverse block overlap
- Helical interpolation
- Coordinate system rotation
- Multi-step skip
- High-speed skip
- Custom macro
- Interruption type custom macro

Mechanical Option

- High torque spindle 10,000min-1, High acceleration spindle 10,000min-1
- Tapping spindle 12,000min-1, High acceleration spindle 24,000min-1
- Low vibration High speed spindle 24,000min-1
- High power version spindle
- Center through spindle (7MPa)
- High column 100/200/300mm
- Splashguard wide opening door: 730mm (α-D14M*i*B Plus/D21M*i*B Plus)
- Splashguard wide opening door: 1100mm (α-D14L*i*B Plus/D21L*i*B Plus)
- Automatic front door opening/closing of splashguard
- Automatic side door of splashguard (right/left)
- Splashguard glass window
- Basic top cover of splashguard/Full-closed cover of splashguard
- X-axis telescopic cover with 3-pieces
- Z-axis metal cover
- Additional 1 axis rotary table DDR*i*B/DDR-T*i*B
- Rotary joint for DDR*i*B/Tail support (standard type)
- Rotary joing for DDR*i*B/Tail support (High pressure type)
- Adjustment of center height, Adjustment of shaft length, End plate (for DDR*i*B)
- Coolant unit (Tank capacity: 100/200/140*4 L)
- Coolant unit for center through coolant (Tank capacity: 240/200*4 L)
- Coolant unit with chip flush (with oil gun)
- Cleaning unit for tool taper shank
- Excellent chip evacuation
- Air blow for chips
- Grip cover
- Automatic oil lubricating/Automatic grease lubricating
- Illumination (LED)
- Signal lamp (3 lamps)
- Tool length switch
- Touch probe

Electric Option

- Conformity to safety standards for EU (CE), China (GB), Korea (KCs), Australia (RCM), Brasil (NR-12)
- Automatic breaker shutdown
- Backup function for power failure (quick stop function)
- Mounting plate for options
- CNC with touch panel LCD
- Network adapter (DeviceNet, PROFIBUS-DP, CC-Link)
- Fast data server (with Compact Flash Memory 4GB)
- ROBOT INTERFACE 2
- Portable MPG (with ESP switch)
- RS232C port
- Rechargeable battery unit
- Various additional I/O unit

Software Option

- AI thermal displacement comensation II
- AI tool monitoring
- Part program storage size 8Mbyte
- Number of registerable programs 4000
- Addition of workpiece coordinate system 300 pairs
- Tool management function (1000 pairs)
- 3D interference check
- Single direction positioning
- Conical/spiral interpolation
- Cylindrical interpolation
- Polar coordinate command
- Scaling
- Programmable mirror image
- AI contour control II
- High-speed processing
- Look-ahead blocks expansion (1000 blocks)
- Smooth tolerance+ control
- NURBS interpolation
- High-speed Smooth TCP
- 3-dimensional cutter compensation
- 3-dimensional coordinate conversion
- Punch tapping function
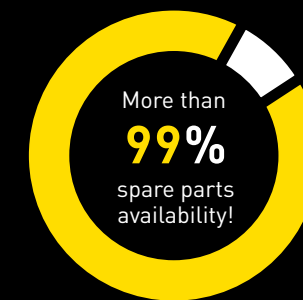- Smart spindle load control
- Quick program restart

PC software

- FIELD system Basic Package
- ROBODRILL-CNC Guide
- FANUC SERVO VIEWER
- FANUC LADDER III
- FANUC PICTURE
- Program transfer tool

Efficient FANUC service worldwide

Wherever you need us, our comprehensive FANUC network provides sales, support and customer service all around the world. That way, you can be sure you have always got a local contact that speaks your language.

More than
99%
spare parts availability!

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FANUC Academy

The FANUC Academy offers everything you need to upskill your teams and increase productivity – from introductory programs for beginners through to courses tailored to the needs of expert users and specific applications. Fast and effective learning, on-site training or cross machine training, make up the extensive educational offering.

WWW.FANUC.EU/SERVICE

Efficient long time productivity:
FANUC Maintenance Services

To minimise impact on production and get the most out of your machine, we offer maintenance services designed to lower your machine's TCO. Whatever your production scenario, FANUC solutions keep your machine running via dedicated preventive, predictive and reactive maintenance procedures that maximise uptime and keep downtime to a bare minimum.

Efficient supply:
Lifetime OEM spare parts

As long as your machine is in service we will provide you with original spare parts. With more than 20 parts centres all over Europe, dedicated service engineers and direct online access to FANUC stores, availability checks and ordering, we keep you running whatever happens.

24/7
support [1]

One common servo and control platform –
Infinite opportunities
THAT's FANUC!

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CNCs, Drives,
Accessories
and Software

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Accessories
and Software

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Electric Discharge
Machines

ROBODRILL
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CNC Machining
Centres

ROBOSHOT
Electric CNC
Injection Moulding
Machines

IoT
Industry 4.0
solutions

MBR-04604-EN-V3-06/2025